

REMARKS:

- 1) The claims have been amended as follows.

Independent claim 17 has been amended to expressly recite that the back surface of the metal foam component is rigidly connected continuously surfacially along the back surface onto the carrier surface of the carrier, whereby the metal foam component is continuously supported along the back surface thereof on the carrier surface of the carrier. This feature was already discussed in the previous Response of August 3, 2009 (see the first paragraph on page 9), but had not been expressly recited in claim 17. This feature is shown in Figs. 7 and 8 of the present application, and is further supported and understood from the written description, e.g. page 8 lines 11 to 15 explaining that the metal foam is fixedly or rigidly connected with the carrier so as to form a sandwich structure, and page 10 lines 16 to 18 explaining that the metal foam is fixedly or rigidly connected with the carrier by gluing or soldering, whereby it can be seen in Fig. 7 that the back surface of the metal foam is glued or soldered continuously surfacially onto the carrier surface of the carrier so that the metal foam is continuously surfacially supported.

Claim 17 has further been amended to remove a product-by-process feature, namely that the metal foam is produced by foaming expansion of a melted metal powder. Because this feature is not regarded as necessary for properly defining and distinguishing the invention of independent claim 17, it has instead been introduced in new dependent claim 34.

4953/WFF:he

- 10 -

Independent claim 29 has been amended similarly as independent claim 17 discussed above, and to incorporate features from prior claim 32.

Dependent claims 32 and 33 have been amended for proper conformance with the amended independent claim 29.

New claims 34 and 35 have been added. As mentioned above, claim 34 recites a feature deleted from claim 17. New claim 35 is an independent claim based on a combination of prior claims 17 and 18, whereby the product-by-process feature discussed above has been omitted from claim 35.

In view of the above discussed claim combinations and support in the original disclosure, the present amendments do not introduce any new matter. Entry and consideration thereof are respectfully requested.

- 2) The specification has been amended at page 10 to provide explicit support of the present claim terminology in the written description. The feature that has now been more clearly described is inherently understood from the original disclosure of Figs. 7 and 8, as well as the original description at page 8 lines 11 to 15, page 10 lines 16 to 18, etc. Thus, the present amendment does not introduce any new matter. Entry thereof is respectfully requested.
- 3) Referring to the "Allowable Subject Matter" section on pages 11 and 12 of the Office Action, the indication of allowable subject matter in claim 18 is appreciated. New independent claim 35 is based on a combination of claims 17 and 18 (omitting the

4953/WFF:he

- 11 -

unnecessary product-by-process limitation). In view of the incorporated allowable subject matter of claim 18, therefore new independent claim 35 should now be allowable. Claim 18 also remains dependent from claim 17, and should thus still be acknowledged as reciting allowable subject matter.

- 4) Referring to the Examiner's "Response To Arguments" at pages 2 and 3 of the Office Action, the Examiner's points of discussion are appreciated and have been taken into account in the present amendments. The product-by-process limitation has been removed from claim 17 and instead recited in a new dependent claim 34, because this limitation is not necessary for properly defining or distinguishing the invention of claim 17. Regarding the point that the previous claims did not expressly recite that the metal foam component is continuously supported along its back surface, the independent claims 17 and 29 have now been amended to make that feature expressly clear. Namely, to avoid any ambiguity, this "continuous" limitation has now been expressly recited. Accordingly, the independent claims are now more-expressly supported by applicant's previous arguments of August 3, 2009, which are incorporated herein by reference and reasserted. The Examiner found those arguments to be persuasive regarding Halila et al.
- 5) Referring to pages 4 to 11 of the Office Action, the several prior art rejections of claims 17 and 19 to 33 as obvious over the US Patent references of Halila et al., Bowers, Jr. et al.,

4953/WFF:he

- 12 -

Roesler et al., Wieghardt, Rossmann et al., Halliwell et al., Simon, Sara, and Lefebvre et al. are respectfully traversed.

Independent claims 17 and 29 now both expressly recite that the back surface of the metal foam component is rigidly connected continuously surfacially along the back surface onto the carrier surface of the carrier, whereby the metal foam component is continuously supported along the back surface thereof on the carrier surface of the carrier. Furthermore, holes passing through the carrier enable gas communication through the carrier and from these holes directly into and radially through the porous metal foam component.

As acknowledged by the Examiner, this structural arrangement is not disclosed or suggested by the primary reference of Halila et al. To the contrary, Halila et al. teach the exact opposite, namely that the porous sintered metal material forming the shroud 18 is purposely spaced away from the carrier or shroud outer band 27 so as to form an air plenum space for distributing the airflow (see Fig. 2 and col. 6 lines 24 to 35). Because Halila et al. purposely provide a more-complicated structural configuration to achieve an air-distributing plenum space directly along the back surface of the porous sintered metal, a person of ordinary skill in the art would not have expected that the arrangement without such an airspace would be functional for the intended purpose, namely evenly distributing the airflow through the porous sintered metal.

None of the additional applied secondary references are seen to modify or supersede the teachings of Halila et al. in this

regard, in order to have suggested or motivated the presently claimed inventive arrangement in which the metal foam component is rigidly connected continuously surfacially along the back surface thereof onto the carrier surface so that the metal foam component is continuously supported along the back surface thereof on the carrier surface of the carrier, and so that gas can communicate from holes in the carrier directly into and radially through the porous metal foam.

The references of Bowers Jr. et al., Roesler et al. and Wieghardt have been cited for disclosing a porous abradable material in the form of a metal foam. But the structural arrangements in those references do not correspond to or suggest the presently claimed arrangement in which the metal foam is continuously surfacially connected and continuously supported along its back surface on the carrier, yet the carrier has holes passing through it to enable a gas communication through the holes directly into the back surface of the metal foam component and radially through the open-pored metal foam.

For example, while Bowers Jr. et al. disclose metal foam material foamed directly into a honeycomb support structure, that structure does not permit gas communication through it.

While Roesler et al. disclose a metal foam supported by a carrier, the metal foam is also covered on its opposite surface with another carrier component or with a protective layer, which block the flow of gas directly radially through the metal foam.

Rossmann et al. were cited for disclosing that an abradable shroud lining can be glued to a carrier surface, but Rossmann et

al. do not allow for gas communication through the carrier and shroud lining.

Halliwel et al. were cited for the use of seal fins and/or an abradable material having a stepped contour, but the construction of Halliwel et al. does not allow for gas communication therethrough.

Simon was cited for disclosing particular metals to be used to make a metal foam used in a context of a turbomachine blade. However, that metal foam is not used for an abradable shroud lining and does not permit gas communication in the radial direction through exposed surfaces thereof.

Sara was cited for disclosing particular metal foam materials, but this reference does not disclose any pertinent structures relating to the claimed inventive structure.

Lefebvre et al. were cited for disclosing a step of surface machining a metal foam material. However, Lefebvre et al. do not disclose any structure that would be pertinent to the inventive structure as claimed.

Therefore, even a combined consideration of all of the references would not have modified the primary reference of Halila et al. in such a manner, so as to proceed directly contrary to the structural arrangement of Halila et al., in order to instead provide a reasonable expectation of success in achieving an expectable result of a radial gas communication directly through the metal foam component that is continuously surfacially connected and continuously supported along the back surface of the metal foam on the carrier surface of the carrier to form the abradable shroud lining.

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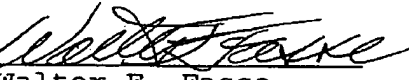
The dependent claims are patentably distinguishable over the prior art already due to their dependence.

For the above reasons, the Examiner is respectfully requested to withdraw the prior art rejections.

- 6) Favorable reconsideration and allowance of the application, including all present claims 17 to 35, are respectfully requested.

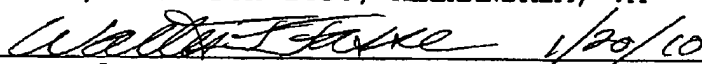
Respectfully submitted,

WFF:he/4953
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Transmittal Cover Sheet

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